

Date: Thursday, 3/9/2006 11:48:19 AM  
 User: Linda Lacelle

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: BLADE FITTING
Job Number	: 26189		
Estimate Number	: 12299		
P.O. Number	: N/A	Part Number	: D3488041
This Issue	: 3/9/2006 S.O. No. : N/A	Drawing Number	: D3488 REV A
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: N/A Type : MACHINED PARTS	Drawing Revision	: A
Previous Run	: N/A	Material	: N/A
Written By	: <u>SEE COMMENT BELOW</u>	Due Date	: 3/16/2006
Checked & Approved By	: <u>SEE ABOVE USER &amp; DATE</u>	Qty:	3/1 Um: Each
Comment	: Est Rev:A New Issue 06-02-28 JLM		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6103003	alum billet
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)  
 Aluminum Round Billet D6103-003  
 Batch: B25806

06-03-09 (3)

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------



Comment: MORI SEIKI CNC LATHE LARGE  
 1-Turn as per Dwg DSK 101 & Folio FA625

2-Deburr

06-03-09 (3)

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
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Comment: INSPECT PARTS AS THEY COME OFF MACHINE

06-03-09 (3)

4.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
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Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA625 & Dwg D3488-1

2-Deburr

Remove SHARP Edge at Largest

06-03-09 (3)

5.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
-----	-----	--







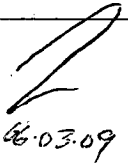
Comment: INSPECT PARTS AS THEY COME OFF MACHINE

06-03-09 (3)

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: 2 Date: 06/03/09  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06.03.09	4	- 2 parts scrap - jig was crooked, needed to be skimmed - dimension 1.417 not parallel		- jig was skimmed - scraped parts		 06.03.09		 06.03.09

NOTE: Date & initial all entries

Date: Thursday, 3/9/2006 11:48:19 AM  
User: Linda Lacelle

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BLADE FITTING

Job Number: 26189

Part Number: D3488041

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

*ML 06/03/10*

1

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

*a.m 06/03/10*

8.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

*ML DL 06/03/27*

③

9.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

*06-03-27*

3

10.0

ALS71032225

INSERT



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part Number Description Batch

4 ALS7-1032-225 Insert *M 14576*

*a.m 06-03-30*

②

11.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg D3488

*a.m 06-03-30*

③

12.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*ML 06 03 30*

③

13.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location *EP*

*ML 06 03 (30)*

③

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: PP Date: 06/03/13  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/9/2006 11:48:19 AM  
User: Linda Lacelle

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BLADE FITTING

Job Number: 26189

Part Number: D3488041

Job Number:



Seq. #:

Machine Or Operation:

Description :

14.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL  
Inspection Level 21

*SP 06/03/31 (3)*

Job Completion



*in 06.03.30*

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

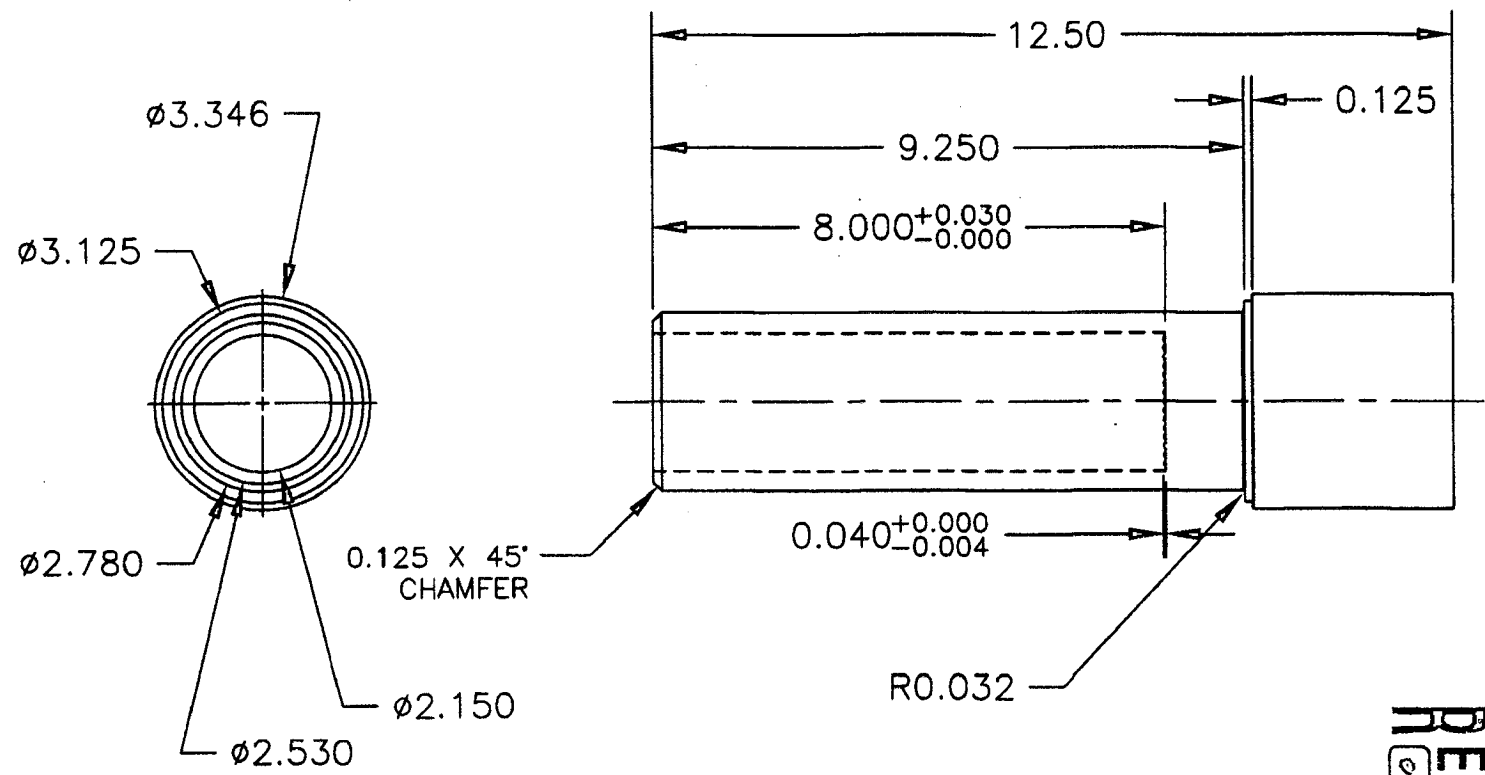
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DESIGN	941	DRAWN BY	941	DART AEROSPACE USA, INC.
CHECKED	<i>[Signature]</i>	APPROVED	<i>[Signature]</i>	PORT HADLOCK, WA
DATE	05.12.21	TITLE	DSK 101	REV. A
			D3488-1/-2 TURNING DETAIL	SHEET 1 OF 1
A	05.12.21	NEW ISSUE		SCALE 1:3

RELEASED  
06.02.07



DSK 101

- 1) MATERIAL: MAKE FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9 (REF. DART MATERIAL SPEC M7075T73R)
- 2) FINISH: NONE
- 3) BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED





DART AEROSPACE LTD		Work Order: P601-622
Description: Blade Fitting		Part Number: 03488-1
Inspection Dwg: 03488	Rev: 1	Page 1 of 2

# FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☒ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø 484		Ø 488	/			
1.180		1.179	/			
3.150		3.150	/			
1.180		1.179	/			
3.070		3.072	/			
Ø .508		Ø .509	/			
R .062		R .062	/			
.590		.593	/			
1.005		1.004	/			
3.500		3.500	/			
Ø .508		.510	/			
.750		.749	/			
1.500		1.499	/			
11.18	+ .030	11.165	/			
8.000	+ .030 - .000	8.001	/			
.125		.126	/			see attached e-mail
2.620		2.615	/			
17°		17°	/			
.793		.797	/			
97°		97°	/			
1.301		1.299	/			
1.417		1.428	/			
1.802		.800	/			

Measured by: SD	Audited by: Jml	Prototype Approval: PH
Date: 06.03.08	Date: 06/03/09	Date: 06/03/10

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/RF	

2545



## **Peter Hum**

---

**From:** David Shepherd [davids@dartaero.com]  
**Sent:** Thursday, March 09, 2006 1:15 PM  
**To:** Peter Hum  
**Cc:** Jean Luc Menard; Linda Lacelle  
**Subject:** Re: d3488 blade fitting

Peter,

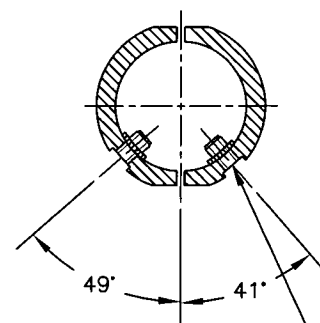
I think it is acceptable to remove this knife edge by sanding/buffing/grinding as long as we have no stress raisers left and the part looks good when this operation has been completed. As we have already discussed, we will be changing the turning to prevent this from happening in the future.

David

----- Original Message -----

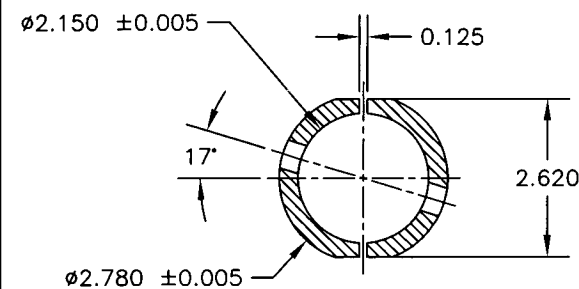
**From:** "Peter Hum" <phum@dartaero.com>  
**To:** "David Shepherd (E-mail)" <davids@dartaero.com>  
**Sent:** Thursday, March 09, 2006 10:54 AM  
**Subject:** d3488 blade fitting

> Hi David,  
>  
> I was examining the 1st off of the blade fitting and I found that the  
> machining in accordance with the turning detail will leave a knife edge.  
>  
> (see my attached picture)  
>  
> I've talked to JLM and have faxed you a possible solution  
>  
> Peter Hum  
> Mechanical Designer  
>  
> DART Aerospace Ltd.  
> Email...phum@dartaero.com  
> Phone...613-632-3336  
> Fax.....613-632-4443  
>  
>



SECTION B-B

Ø0.297  
C'BORE Ø0.430 x 0.100  
INSTALL ALS4-1032-225 (OR AKS4-1032-225  
OR ALS7-1032-225 OR AKS7-1032-225)  
INSERTS AFTER FINISH  
(4 PLACES)



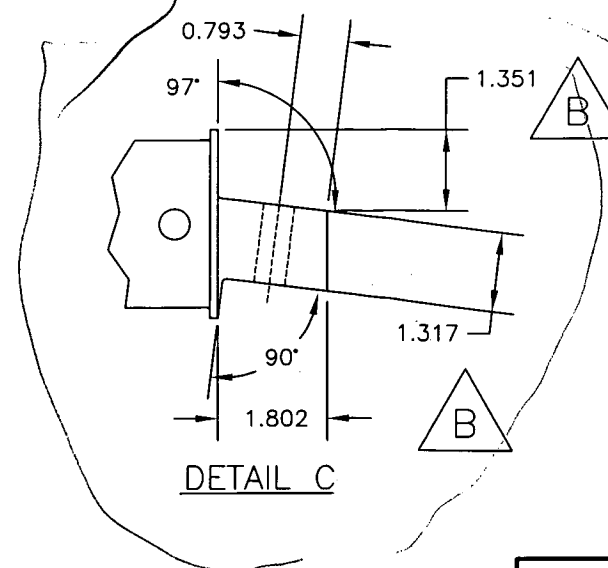
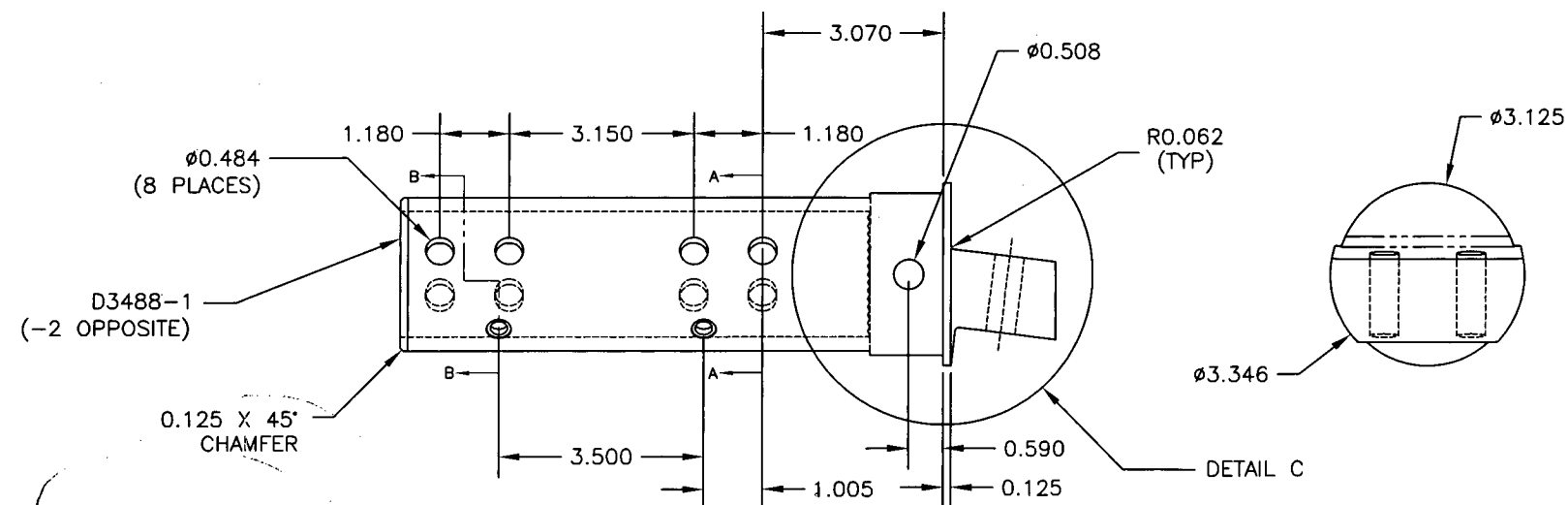
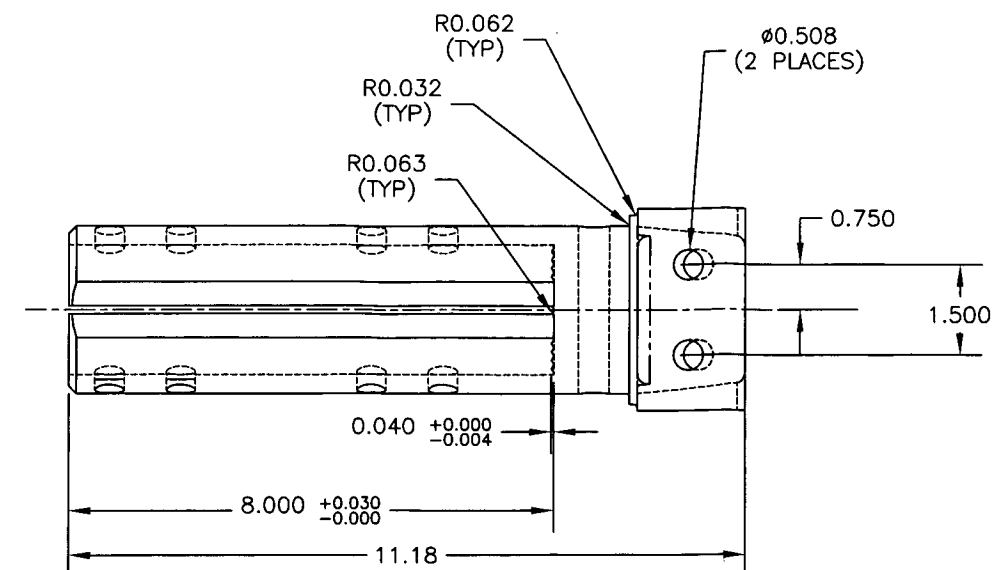
SECTION A-A

**D3488-041/-042 BLADE FITTING ASSEMBLY PARTS LIST**

QTY -041	QTY -042	PART NUMBER	DESCRIPTION
X		D3488-041	BLADE FITTING ASSEMBLY (LH)
	X	D3488-042	BLADE FITTING ASSEMBLY (RH)
1		D3488-1	BLADE FITTING (LH)
	1	D3488-2	BLADE FITTING (RH)
4	4	ALS4-1032-225 or AKS4-1032-225 or ALS7-1032-225 or AKS7-1032-225	INSERT

**D3488-041/-042 BLADE FITTING**

- MATERIAL: MAKE D3488-1/-2 FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9 (REF. DART MATERIAL SPEC M7075T73R)
- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1  
POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
- BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- INSTALL INSERTS AFTER POWDER COAT
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED



D3488-041 SHOWN (D3488-042 OPPOSITE)

**PRELIMINARY ISSUE**

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B	06.03.15	CHANGE THICKNESS
A	05.12.20	NEW ISSUE
DESIGN PH	DRAWN BY PH	<b>DART</b> DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED #	APPROVED #	DRAWING NO. D3488
DATE 06.03.15	TITLE BLADE FITTING	REV. B SHEET 1 OF 1 SCALE 1:3